

C14-A-104/C14-AA-104/C14-AEI-104/C14-BM-104/C14-C-104/  
C14-CHOT-104/C14-CHPC-104/C14-CHPP-104/C14-CHST-104/  
C14-CM-104/C14-EC-104/C14-EE-104/C14-IT-104/C14-M-104/  
C14-MET-104/C14-MNG-104/C14-PET-104/C14-RAC-104/C14-TT-

**104**

**4004**

**BOARD DIPLOMA EXAMINATION, (C-14)**

**JUNE-2019**

**FIRST YEAR (COMMON) EXAMINATION**

**ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES**

Time: 3 hours

Max.Marks:80

**PART-A**

**3x10=30M**

**Instructions:** 1) Answer **all** questions.  
2) Each question carries **three** marks.  
3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

- 1) State Pauli's exclusion principle and Hund's rule.
- 2) Write any three properties of ionic compounds.
- 3) What is buffer solution? Give any two uses of buffer solution.
- 4) Define mole. Find the number of moles present in 4gm of NaOH.
- 5) What are metallic conductors and electrolytic conductors. Give examples.
- 6) Define reverse Osmosis. Give any two advantages of reverse Osmosis.
- 7) Write the method of preparation and two uses of PVC.
- 8) Write the Primary and Secondary fuels? Give examples.
- 9) Write any three threats to Biodiversity.
- 10) Define i) BOD ii) COD iii) Threshold limit value.

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## PART-B

10X5=50M

**Instructions :** 1) Answer any **five** questions

2) Each question carries **ten** marks

3) Answer should be comprehensive and the criteria for valuation is the content but not the length of the answer.

- 11) a) Explain the significance of quantum numbers 6m  
b) Define oxidation and reduction. Give an example for each.
- 12) a) Define Normality. Calculate the weight of  $\text{Na}_2\text{CO}_3$  present in 100ml of 0.5N solution. 4m  
b) Explain Bronsted Lowry theory of acids and basis.
- 13) a) Explain electrochemical series and its significance. 4m  
b) Describe the construction and working of Galvanic cell 6m
- 14) a) Define corrosion. Explain any four factors which influence the rate of corrosion.  
b) Explain sacrificial anode method of prevention of corrosion.
- 15) a) Define the terms (i) mineral (ii) ore (iii) gangue (iv) flux (v) slag. 5m  
b) Explain electrolytic refining of a metal. 5m
- 16) a) Explain permutit process of softening of hard water 6m  
b) Write the names and formulae of the salts responsible for temporary and permanent hardness of water.
- 17) a) Distinguish between thermoplastics and thermosetting plastics 6m  
b) Write any four advantages of plastics over traditional materials. 4m
- 18) a) Define water pollution. Explain any four causes of water pollution.  
b) Write a short note on Green house effect. 4m

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